

# LYMPHOEDEMA: MANAGING PATIENTS WITH RELATED WOUNDS

Lymphoedema is a newly developing speciality that still appears to be the 'Cinderella' of medicine – often unrecognised as a major health issue in both developed and developing countries. This article investigates the link between lymphoedema and wound care and suggests some management strategies.

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Wound care is an international problem. Within Australia, for example, the cost of inpatient care for patients with wounds has been estimated at \$8,734 per patient admission (Grindlay and MacLellan, 1997). Australia's national health expenditure on wounds, such as leg ulcerations, is said to be approximately \$365–\$654 million (Baker et al, 1991; Santamaria et al, 2002). In the US, it has been estimated that there are at least five to seven million chronic wounds reported annually, at a cost of over \$20 billion (Frykberg et al, 2000; Petrie et al, 2003).

In order to raise the profile of those suffering from wounds globally, a new organisation, known as the World Alliance for Wound and Lymphoedema Care (WAWLC), was formed in October 2009. Its mission statement, 'Working in partnership with communities worldwide to advance sustainable prevention and care of wounds and lymphoedema in settings with limited resources,' is key for clinicians working in the field of chronic wounds, especially those who have limited resources.

One does not have to live in a developing country to understand

the concept of limited resources. Financial impositions placed on acute care facilities in the UK continue to influence the way in which clinicians manage chronic wounds. Ideally, the patient is admitted to hospital for bed rest, leg elevation and perhaps a nutrition assessment. Sadly, however, hospital beds often go to patients suffering from acute wounds, and not always the frail and debilitated.

This paper outlines some of the absolute basic principles of lymphoedema-related wound care that is required to implement positive clinical outcomes for both patients and clinicians.

## Diagnosis

First and foremost, the clinician's priority should be establishing a diagnosis of the wound type and, where possible, confirming this diagnosis. Confirming a diagnosis may be done by performing tests specific for a particular condition or compiling a list of related signs and symptoms that may lead to a diagnosis. One can also seek a second opinion from a specialist clinician.

In tropical climates, a small scratch can become rapidly infected. The urgency of this is often misunderstood by the

patient who may take several days before seeking help. For example, *Figure 1* shows a patient in the Solomon Islands with a wound that began as a scratch. The patient required extensive debridement, antibiotics and advanced dressings, however, some of these things are not always available in developing countries and in this case the end result was forefoot amputation.

In many developing countries, the most common cause of failed wound healing, is diabetes. It is estimated that one diabetes-related amputation occurs every 30 seconds worldwide (Campbell et al, 2000). Diabetes often leads to infected wounds and oedema, which if not managed correctly leads to filariasis, which in turn leads to lymphoedema.

The patient in *Figure 2* was unaware that they had diabetes until the wound failed to heal and further tests were performed. Patients with diabetes often have a poor propensity to heal due to the risk of infection, and may also experience small arterial vessel occlusion, large vessel stenosis or both (Macdonald, 2001). (See *Figure 3*).

The inherent reduced healing capacity in these patients is challenging. Slow healing in any wound means that more resources



Figure 1. Solomon Island patient with diabetes and an infected ischaemic foot wound.

are required. There may be increased pain and suffering, and quality of life issues need to be considered.

Also, in developing countries, the few resources available are often wasted on treating wounds that may not heal unless their underlying pathophysiology is addressed.

Establishing a diagnosis requires a comprehensive medical history as well as an examination to look for the characteristics of the most common wounds known within the patients' geographical region. For example, in Western societies the most common cause of lower leg ulceration is chronic venous insufficiency (Valencia et al, 2001) and these ulcers have identifiable tissue characteristics, together with common medical pathologies. (See Table 1).

Taking an holistic approach can ensure that any other factors inhibiting or delaying wound healing may be rectified in order to achieve optimal healing. The characteristics

of arterial ulceration are listed in Table 2.

### Lymphoedema

The aim of this paper is to assist clinicians to make effective treatment decisions for patients with both lymphoedema and an open wound. The common implications of lymphoedema are swelling causing skin changes, leading to greater risk of local skin



Figure 2. Patient with venous leg ulceration.

infections and personal discomfort.

The clinician attending to a patient with lymphoedema will rarely see ulceration. Ulceration in lymphoedema is often hidden. The skin over the ulcer can thicken and begin to look like elephant hide, however, skin infections are common. Certainly the condition of the skin can be of concern, but according to the current literature, actual wounds in lymphoedema patients are rare.

The reality for many clinicians who work with chronic wounds is that patients treated for chronic venous disease and venous ulceration may have a combination of venous disease and lymphoedema. Reconsidering the classification system for these patients, will help get a clear number of patients with a venolymphatic

Table 1.

#### Some characteristics of venous leg ulceration

##### Characteristics of ulcer

- » Shallow, wet ulcer that is often located in the medial and/or lateral aspect of the lower third of the lower leg
- » Minimal discomfort, that is usually associated with oedema, and is alleviated when the leg is raised to reduce oedema
- » Skin colour and texture changes seen in the lower leg due to haemosiderin deposition beneath the skin and within the subcutaneous tissue

##### Common known medical associations

- » Past history of a deep vein thrombosis (DVT)
- » Familial history of lower leg ulcers and varicose veins
- » Varicose veins
- » Protein C deficiency

condition. Particularly, in Australia, lymphoedema specialists are beginning to collect data to support clinical opinion on this (Carville, 2005) (Figure 4).

Historically speaking, and from the author's personal experience in Australia, it has been a challenge to get lymphoedema clinicians to treat patients with a wound. Without good oedema management a wound may be slow to heal or fail to heal.

### Assessment

#### Step 1: Establish a correct diagnosis

As mentioned above, this is the crux of all wound management. There are, however, many other factors apart from the underlying aetiology that could impact wound healing. Therefore, once diagnosis is established and steps are taken to normalise a wound as much as possible, the clinician should focus on the other factors influencing healing.

#### Step 2: Establish a list of factors that may be influencing healing in the patient

Factors influencing healing can be listed as local to the wound and general to the person, or intrinsic and extrinsic. The location of the wound includes the site, the type of tissue in the wound; general to the person includes their nutrition, their hygiene, other medical



Figure 3. Patient with arterial ulceration.

conditions. Table 3 is a list of local and general factors related to healing that should be considered in all patients with slow healing wounds (Schultz et al, 2003).

#### Step 3: Select an appropriate dressing for the tissue type, volume of exudate and depth of wound

This is perhaps where many clinicians lack confidence, as there are currently many dressings to select from. In the past, whilst the available products may not always have been ideal, selection was relatively easy, for example, whether to use saline, Betadine® (Purdue Pharma) or Edinburgh University Solution of Lime (EUSOL).

There are over 2,000 wound care products available, many are 'me to' products (similar products with different brand names), but essentially contain the same ingredients. It is important to have a system to help clinicians make effective dressing decisions. Looking at the T.I.M.E. acronym (Box 1) is perhaps one way to face this challenge (Harding et al, 2000).

#### Box 1. The T.I.M.E. acronym

**T:** Tissue, viable, non viable and management  
**I:** Inflammation, infection and management of both  
**M:** Moisture balance-not too wet not too dry, unless dry ischemia evident  
**E:** Epithelial edge – advancing across the healthy wound tissue

Without being too broad or prescriptive, most clinicians managing wounds in patients with lymphoedema or venolymphoedema have two basic types of tissue to deal with – healthy red granulation tissue, where the epithelium has been 'washed' away by venous hypertension, and leaking oedema – or a necrotic, sloughy and wet infection, which comprises locally infected tissue.

#### Dressings

Before selecting a wound product it is important to evaluate how often the dressing can ideally be attended to, the condition of the peri-wound

Table 2.

#### Some common characteristics of arterial ulceration

##### Characteristics of ulcer

- » Well-demarcated, often steep edges
- » Often infected or easily infected
- » Poor quality granulation tissue
- » Located on the foot, higher up on the limb or on the posterior region of the leg
- » The skin may be pale, dry and 'wasted or under-nourished' in appearance
- » There may be oedema, if the patient has so much pain that they keep their leg inactive

##### Common known medical associations

- » Atherosclerosis
- » Diabetes
- » Smoking, past, present or occasional
- » Hypertension
- » Hypercholesterolaemia (elevated fat in the body)
- » Hyperlipidaemia



Figure 4. Patient with veno-lymphatic ulceration.

area and the cost of the suggested treatment regimen.

Some primary dressing products can be left in place for two or three days or longer and some must be attended to daily

**Products for encouraging healthy granulation tissue growth are listed as follows:**

- ▶▶ Steripaste (Mölnlycke Healthcare)
- ▶▶ Gelocast (Mölnlycke Healthcare)
- ▶▶ Zip Zoc® (Smith & Nephew)
- ▶▶ Gelocast (Smith & Nephew)
- ▶▶ Varolast®\* (Hartmann)
- ▶▶ Viscopaste®\* (Smith & Nephew)
- ▶▶ Flexi-dress® (ConvaTec).

\* contains preservative

Zinc paste bandages are applied by either wrapping the entire leg in the bandage or cutting a piece of the bandage off and folding it to a size to match the wound.

**Products for sloughy, wet and infected tissue offering an antimicrobial cover include:**

- ▶▶ Iodosorb® (Smith & Nephew)
- ▶▶ Acticoat®, Acticoat 7®, Acticoat® absorbent (Smith & Nephew)
- ▶▶ Biatain® Ag (Coloplast)
- ▶▶ Mepilex® Ag (Mölnlycke

Healthcare)

- ▶▶ Atrauman® Ag (Hartmann)
- ▶▶ Inadine\* (Systagenix)
- ▶▶ Aquacel® Ag (Convatec).
- ▶▶ Silvercel® (Systagenix)
- ▶▶ Medihoney™ (Comvita)
- ▶▶ Manuka honey
- ▶▶ Mesalt® hypertonic salt (Mölnlycke Healthcare)
- ▶▶ Metronidazole gel
- ▶▶ Curasalt™ (Covidien)
- ▶▶ Wound Aid gel-Tea tree oil gel (Rye Pharmaceuticals)
- ▶▶ Enzyme/alginate or Flaminal® (Aspen Pharmaceuticals).

\* colonised wounds

Each of these products have a different wear time. It is strongly suggested that the clinician reads the instructions detailing dressing change routines.

The secondary product or covering dressing used with both the zinc-based products and the antimicrobial products should contain and manage the exudate or moisture that will continue to leak off the wound until the oedema

and infection are reduced. Whilst the various foam and foam-like products available to absorb exudate are excellent, the cost of continually changing them can become a burden on the patient.

Investing in new and advanced wound nappies/diapers may be appropriate. These products contain small absorbent polymer beads that are also found in continence aids and baby diapers. These are:

- ▶▶ Zetuvit® Plus (Hartmann)
- ▶▶ Eclipse (MediGroup [Australia] and Advancis Medical overseas)
- ▶▶ DryMax® (Reliance Medical [Australia] and distributed by many companies overseas)
- ▶▶ Alione® (Coloplast).

Ensuring bacterial reduction on the skin is also an important consideration for both the management and prevention of ulceration. Skin antiseptics (Betadine®, chlorhexidine or triclosan agents) are useful as either limb washes or full body washes (especially in obese patients with at risk skin folds) as a means to

**Table 3.**

Some common factors that may influence healing of wounds

**General factors influencing healing**

- ▶▶ Age — healing more problematic in neonates/elderly
- ▶▶ Presence of underlying disease
- ▶▶ Vascularity and overall perfusion status
- ▶▶ Nutritional status, undernourished, malnourished or obesity
- ▶▶ Disorders of sensation (neuropathy) or movement
- ▶▶ Psychological factors — motivation
- ▶▶ Radiation therapy — past or present
- ▶▶ Medications — prescribed, non-prescribed and over the counter.

**Local factors influencing healing**

- ▶▶ Type of tissue within the wound — too wet/too dry
- ▶▶ Wound management practices — skilled versus unskilled, following practice guidelines, etc
- ▶▶ Wound temperature — maintaining normo-thermia within the wound for as long as possible
- ▶▶ Further trauma — at dressing changes or pressure, shear and friction
- ▶▶ Presence of foreign material within the wound
- ▶▶ Wound infection — local or systemic.

keeping the bacterial load low.

When using these, however, it is important to restore the normal pH of the skin by using good quality pH-balanced moisturisers and emollients.

#### Step 4: Plan for maintenance

Clinicians should manage oedema in these patients using dressings and devices that are most appropriate for them.

In oedema, exudate levels are often high, which can cause damage to the periwound. Ideally, using the correct therapy will have a positive effect on the exudate level and ultimately the tissue type found within the wound, whether necrotic wet, necrotic dry, slough, granulation or epithelium.

Once the area is healed, the use of on going compression/support therapy is imperative in the overall care planning.

By performing a comprehensive wound assessment, addressing tissue needs and managing exudate levels, the clinician should see an improvement within at least two to three weeks of treatment. If the treatment goal is not being met, then the clinician should review the case, as something may have been missed in the initial assessment.

#### Resources

The WAWLC has published, through the World Health Organization, an excellent handbook for clinicians to use as a basis for managing patients. However, the booklet refers to several 'modern' dressing agents that may not be available in resource poor

countries. To obtain this booklet please visit <http://www.who.int/en/> – then type 'World Alliance for Wound and Lymphoedema Care' into the search box. Resources are free to download and will hopefully encourage the sharing of information amongst clinicians, enhancing wound care practices.

The concepts behind the products are more important. Having an understanding of how they impact the wound site can then give the clinician some 'license' to prescribe products and devices. **WE**

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#### Basic wound management principles

- » Establish and confirm the diagnosis of the wound.
- » Review general health condition of the patient, and, where possible, correct any known factors that may influence the ability of the wound to heal within normal time frames (most wounds should be almost fully healed within 4–6 weeks).
- » Select a suitable dressing to meet the needs of the tissue and treatment goals, utilising the current resources available.
- » Plan healing within a timeframe suitable to both the patient and the setting, and review if this time line is not being met.
- » Plan to keep the area free from further wounds.

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